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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,383

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Elliott P. Dawson

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EXAMINER

ZARA, JANE J

ART UNIT

PAPER NUMBER

1635

MAIL DATE

DELIVERY MODE

07/21/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,383	Applicant(s) DAWSON ET AL.	
	Examiner Jane Zara	Art Unit 1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33-86 is/are pending in the application.
- 4a) Of the above claim(s) 33-52 and 54-86 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in response to the communication filed 5-10-10.

Claims 33-86 are pending in the instant application.

Election/Restrictions

This application contains claims 33-52, 54-86, drawn to an invention nonelected with traverse in the reply filed on 8-18-09, as being drawn to separate inventions. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Response to Arguments and Amendments

Withdrawn Rejections

Any rejections not repeated in this Office action are hereby withdrawn.

Applicant's arguments with respect to claim 53 have been considered but are moot in view of the new ground(s) of rejection as set forth below.

Rejections Necessitated by Amendments

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobsen et al (US 2005/0272075).

The claim is drawn to a method of isolating a microRNA of interest comprising providing a set of capture probes with a first adapter segment having a first adapter segment sequence, the first adapter segment comprising a 3' end and a 5' end, a second adapter segment having a second adapter segment sequence comprising a 3' end and a 5' end, which different capture probes each comprise different first adapter sequences from each other, and which capture probes also comprise different microRNA binding segments, each having a microRNA binding segment sequence that is substantially complementary to a different microRNA of interest, wherein the 5' end of the first adapter segment connects to the 3' end of the microRNA binding segment, the 3' end of the second adapter segment is connected to the 5' end of the microRNA binding segment, providing a first linker and a second linker, combining these components with a sample comprising one or more microRNAs of interest, allowing the

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first linker for each capture probe to hybridize with its corresponding first adapter segment, the microRNA of interest to hybridize with the microRNA binding segment and the second linker to hybridize with the second adapter segment, ligating the 3' end of the first linker that is hybridized to the first adapter segment to the 5' end of the microRNA of interest that is hybridized to the microRNA binding segment, and ligating the 3' end of the microRNA of interest that is hybridized to the microRNA binding segment to the 5' end of the second linker that is hybridized to the second adapter segment, wherein a complex is produced upon ligation comprising a ligated first linker – microRNA of interest – second linker which is hybridized to each of the corresponding capture probes, and wherein the first linker is complementary to the first adapter segment of the corresponding capture probe and the second linker is complementary to a second adapter segment of the capture probe, dehybridizing the capture probe from the strand of the ligated first linker – microRNA of interest – second linker.

Jacobsen et al (US 2005/0272075) teach methods of isolating microRNA of interest from a sample comprising microRNA of interest, the method comprising providing a capture probe, wherein the capture probe has a first adapter segment sequence, wherein the first capture probe has a microRNA binding segment sequence, which microRNA binding segment is substantially complementary to and hybridizes to one or more microRNAs of interest, and wherein the 5' end of the first adapter segment is connected to the 3' end of the microRNA binding segment, and the 3' end of the second adapter segment is connected to the 5' end of the microRNA binding segment, providing a first linker and a second linker, combining the sample, the capture probe,

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first and second linkers, allowing the first linker to hybridize with the first adapter segment, the microRNA to hybridize with the microRNA binding segment, the second linker to hybridize with the second adapter segment, ligating the 3' end of the first linker (which is hybridized to the first adapter segment) to the 5' end of the microRNA of interest (which is hybridized to the microRNA binding segment), ligating the 3' end of the microRNA of interest (which is hybridized to the microRNA binding segment) to the 5' end of the second linker (which is hybridized to the second adapter segment), dehybridizing the capture probe from the ligated strand, wherein the first linker binds to a substantially complementary first adapter segment of the capture probe, and the second linker hybridizes to a substantially complementary second adapter segment of the capture probe (see entire document, esp. pp. 4-5, 9-10, 15-21, 24-25, 27, 37, 45-48).

Jacobsen does not teach a set of capture probes that target different microRNA molecules.

It would have been obvious to design additional capture probes relying on the those initially taught by Jacobsen, but comprising additional and distinct adapter segment sequences and comprising different microRNA binding segments for capturing multiple, different microRNAs of interest from a solution. This would involve synthesizing capture probes capable of ligations as originally described by Jacobsen, but using several distinct capture probes designed to bind to different microRNAs of interest, and designed to be captured by distinct adapter segments on the corresponding capture probes. One of skill would have been motivated to design and

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use multiple and distinct capture probes as instantly claimed in order to fish out multiple microRNAs of interest from the same solution, and partially isolating these different microRNAs utilizing the different adaptor sequences and different ligation products. One of skill would reasonably expect that the distinct capture probes would be used to successfully identify multiple microRNA molecules within the same solution because it would involve minor adaptations of the original capture probes taught by Jacobsen, incorporating different adaptor sequences and microRNA binding segments that are distinct from each other and easily separated in a solution. The ligation reactions generating the captured molecules comprising microRNA target molecules of interest flanked by ligated first and second linkers hybridized to corresponding capture probes would merely involve a modification of capture probes bearing distinct adaptor and microRNA binding sequences, each with distinct adaptor segments.

For these reasons, the instant invention would have been obvious to one of skill in the art at the time of filing.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Certain papers related to this application may be submitted to Art Unit 1635 by facsimile transmission. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 C.F.R. ' 1.6(d)). The official fax telephone number for the Group is **571-273-8300**. NOTE: If Applicant *does* submit a paper by fax, the original signed copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jane Zara** whose telephone number is **(571) 272-0765**. The examiner's office hours are generally Monday-Friday, 10:30am - 7pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Low, can be reached on (571) 272-0951. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jane Zara
7-15-10

/Jane Zara/

Primary Examiner, Art Unit 1635